



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/812,340      | 03/29/2004  | Mahesan Chelvayohan  | 2003-0693.02        | 4148             |

7590 12/27/2005  
Elizabeth C. Jacobs, Esq.  
Intellectual Property Law  
Lexmark International, Inc.  
740 West New Circle Road, Bldg. 082  
Lexington, KY 40550

|          |
|----------|
| EXAMINER |
|----------|

WILLIAMS, DON J

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

2878

DATE MAILED: 12/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H/A

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/812,340             | CHELVAYOHAN ET AL.  |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Don Williams           | 2878                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on March 29, 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on March 29, 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Courtney et al in view of Butler et al (4,950,905).

As to claims 1, 5, 9, Courtney et al disclose a media support surface (35), and a first normal line extending perpendicular to a plane of media support surface (35); a light source (31) positioned at a first angle with respect to first normal line, light source (31) producing a light beam; a light detector (33) positioned at a second angle with respect to first normal line, light source (31) and light detector (33) being positioned on opposite sides of first normal line, light detector (33) providing an output; a reflective surface (38) formed near media support surface (35), reflective surface (14, 38) being formed, light source (31) and light detector (33) being positioned in relation to reflective surface (14, 38) such that when a sheet of print media (18, 37) covers reflective surface (14, 38), a reflected specular light component of light beam is received by light detector (33), and when reflective surface (14, 38) is not covered, reflective surface (14, 38) directs the reflected specular light component of light beam away from light detector (33), output of light detector (33) providing an indication of a presence or an absence of sheet of print

Art Unit: 2878

media (18,37) wherein a signal strength of output from light detector (16) when receiving a diffuse light component reflected from reflective surface (14, 38) is less than the signal strength of output from said light detector (16) when receiving the reflected specular light component that is reflected from a low reflectance print media, (see figure 1, column 2, lines 55-67, figure 3, figure 4, column 3, lines 6-67). Courtney et al fail to explicitly teach a second normal line perpendicular to reflective surface and non parallel to first normal line corresponding to a third angle relative to the plane of media support surface. Butler et al disclose a second normal line perpendicular to reflective surface and non parallel to first normal line (15) corresponding to a third angle ( $\alpha$ ) relative to the plane of media support surface (10). It would have been obvious for one ordinary skill in the art to modify Courtney et al to include a second normal line perpendicular to reflective surface and non parallel to first normal line (15) corresponding to a third angle ( $\alpha$ ) relative to the plane of media support surface (10) as disclosed by Butler et al in order to effectively improve the ability to discriminate and or distinguish between the diffused light component signal and the specular light component signal wherein the output signal is low indicative of the absence of no transparent media or paper corresponding to the diffused light component signal detected by detector (17) and the reflected specular light component or signal is high indicative of the presence of transparent media or paper detected by detector (16), (see figure 1, column 4, lines 26-67).

As to claims 2, 6, 10, Courtney et al disclose circuit gains, logic output and Schmitt trigger output that are functionally equivalent to the controller and optically

connected to the light detectors. It would have been obvious for one ordinary skill in the art to include output circuitry, such as circuit gains, logic output, and Schmitt trigger output as disclosed by Courtney et al to improve the optical communication and the distinguishing of the reflected specular signal and the diffuse light component signal in order to determine the presence or the absent of paper, (see figure 3, figure 4, column 3, lines 6-67).

As to claims 3, 7, 11, Courtney et al disclose low reflectance print media (18) having a diffuse finish, (see figure 1, column 2, lines 55-67).

As to claims 4, 8, 12, the modified Courtney et al disclose first angle and second angle being substantially equal, (see figure 1, column 4, lines 25-30).

Claims 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Courtney et al (5, 139,339).

As to claim 13, Courtney et al disclose a reflective surface (14, 38) having a normal line extending perpendicular to reflective surface (14, 38); and a media sensor (30) having a centerline, media sensor (30) including a light source (31) and a light detector (33), light source (31) and light detector (32) being positioned on opposite sides of centerline, light source (31) producing a light beam, light detector (33) providing an output, light source (31) and light detector (33) being positioned with respect to reflective surface (14, 38). Courtney et al fail to explicitly disclose controller communicatively coupled to light detector to receive the output signals. It would have been obvious for one ordinary skill in the art to include output circuitry, such as circuit

Art Unit: 2878

gains, logic output, and Schmitt trigger output as disclosed by Courtney et al to improve the optical communication and the distinguishing of the reflected specular signal and the diffuse light component signal wherein the output signal is low indicative of the absence of no transparent media or paper corresponding to the diffused light component signal detected by detector (17) and the reflected specular light component or signal is high indicative of the presence of transparent media or paper detected by detector (16), (see figure 1, column 4, lines 26-67).

As to claim 14, Courtney et al disclose media sensor (30) being positioned with respect to reflecting surface (14, 38) such that normal line of reflecting surface (14, 38) intersects a region between light source (12, 31) and light detector (16, 33), (see figure 3, figure 4, column 3, lines 6-67).

As to claim 15, Courtney et al disclose a media support surface (35), reflective surface (14, 36, 38) being positioned along media support surface (35) wherein reflective surface (14, 36, 38) being formed at an angle with respect to media support surface (35), (see figure 3, figure 4, column 3, lines 6-67, column, figure 5, column 4, lines 6-24).

As to claim 16, Courtney et al disclose sheet of print media (18) covers reflective surface (14), reflected specular light component of light beam is received by light detector (16), and when reflective surface (14) is not covered, reflective surface(14) directs reflected specular light component of light beam away from light detector (16), output of light detector (16) providing an indication of presence or absence of sheet of print media (18), (see figure 3, column 3, lines 6-30).

As to claim 17, Courtney et al disclose low reflectance print media (18) having a diffuse finish, (see figure 1, column 2, lines 55-67).

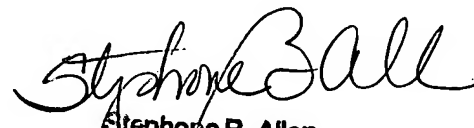
As to claim 18, Courtney et al disclose light detector (31) as being the sole light detector in media sensor (30), (see figure 4, column 3, lines 30-40).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Don Williams whose telephone number is 571-272-8538. The examiner can normally be reached on 8:30a.m. to 5:30a.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Stephane B. Allen  
Primary Examiner